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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS R. TUDOR and WILLIAM C. PAETOW, II

Appeal 2008-005045
Application 10/023,333
Technology Center 3700

Decided: August 28, 2009

Before JENNIFER D. BAHR, JOHN C. KERINS, and MICHAEL W.
O'NEILL, *Administrative Patent Judges*.

O'NEILL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Thomas R. Tudor et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-6, 8-18, and 20-22. Claims 7 and 19 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

The Invention

The claimed invention is to viscous material dispense systems. Spec. 1: ¶ [0002].

Claim 4, reproduced below, is representative of the subject matter on appeal.

4. An apparatus for dispensing a viscous material comprising:

a hollow tubular housing having a first end and a second end for carrying viscous material therebetween, and a nozzle-retaining annular shoulder surface adjacent one end of the tubular housing; and

a nozzle insert engagable [sic] with the nozzle-retaining annular shoulder surface within the tubular housing, the nozzle insert having a non-linear axially extending inner surface defining a passage therethrough with an aperture of reduced dimension adjacent an outlet end for discharging a viscous material from the tubular housing through the nozzle insert.

The Prior Art

The Examiner relies upon the following as evidence of unpatentability:

Miller	US 5,397,180	Mar. 14, 1995
Keller	US 5,478,150	Dec. 26, 1995
Brennan	US 6,138,872	Oct. 31, 2000

The Rejections

The following Examiner's rejections are before us for review:

Claims 4, 6 and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by Brennan.

Claims 4, 5, 8-10, 12-17 and 20-22 are rejected under 35 U.S.C. § 102(b) as being anticipated by Miller.

Claims 1-6, 8-18 and 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brennan, Miller and Keller.

SUMMARY OF DECISION

We AFFIRM-IN-PART.

OPINION

Rejection of claims 4, 6, and 21 as anticipated by Brennan

Issue

The Appellants contend that Brennan lacks a nozzle-retaining annular shoulder surface. App. Br. 6. The issue before us is then whether Brennan describes a shoulder surface.

Pertinent Facts

We find that the following enumerated findings of fact are pertinent to analyzing whether the Appellants have demonstrated that the Examiner erred in finding that Brennan anticipates the inventions within claims 4, 6, and 21.

1. An ordinary and customary meaning of “annular” is “relating to, or forming a ring.” *See* MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 50 (11TH ed. 2008).
2. An ordinary and customary meaning of “shoulder” is “an area adjacent to or along the edge of a higher, more prominent, or more

- important part.” *See* MERRIAM WEBSTER’S COLLEGIATE DICTIONARY 1153 (11TH ed. 2008).
3. Brennan describes that a bullet shaped insert 12 is inserted into a discharge end 18 of a static mixer 16. Brennan, col. 2, ll. 5-8.
 4. Figures 3A, 3B, and 4 show the shape of the discharge end 18 and bullet insert 12. Both structures are shaped as frustums of right circular cones. Further, it appears from the drawings that the bullet-shaped nozzle fully sets into the discharge end 18, and does not have a structure that engages the annular surface area which the bottom portion of mix elements 26 (labeled in figure 3A as 76) are secured to. Brennan, figs. 3A, 3B, and 4 (note the curved arrow line segment between figures 3A and 3B).

Principles of Law

The first step in an anticipation analysis is a proper construction of the claims, and the second step is to compare the properly-construed claim to the prior art. *See Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 933 (Fed. Cir. 2003). The scope of claims in patent applications is determined by giving claims “their broadest reasonable interpretation consistent with the specification” and “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros, Inc.. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). To establish anticipation, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242

F.3d 1376, 1383 (Fed. Cir. 2001). In other words, “there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.” *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991). It is not necessary, however, that the reference teach what the subject application teaches, but only that the claim read on something disclosed in the reference, i.e., that all of the limitations in the claim be found in or fully met by the reference. *See Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 772 (Fed. Cir. 1983).

Analysis

Claim 4 requires a nozzle-retaining annular shoulder adjacent one end of the tubular housing. An ordinary and customary meaning of “annular” is “relating to, or forming a ring.” Fact 1. The issue the Examiner and Appellants differ on is what would reasonably constitute a shoulder. An ordinary and customary meaning of “shoulder” is “an area adjacent to or along the edge of a higher... part.” Fact 2. Hence, an annular shoulder is a ring-shaped area along an edge of a higher part.

The Specification discloses the structure labeled 24d in the drawings as the shoulder. Further, in the Specification, the shoulder 24d is “defined by the tube member at the intersection of the main body portion of the tube member and the lower end 24b of the tube member.” Spec. 5: ¶ [0027]. Figure 9 best illustrates this structural relationship. As illustrated, shoulder 24d is an area adjacent to a higher part. The higher part is the inner surface of the tube member 24 that contains the static mixers 26, 28.

In view of the foregoing, a person having ordinary skill in the art would interpret the claim limitation of a nozzle retaining annular shoulder

surface as a shape having a ring-like area that is adjacent to an edge of a higher cylindrical part wherein the ring-like area receives and retains a nozzle in position.

Brennan describes discharge end 18 as frusto-conical in shape. Facts 3 and 4. While Brennan's discharge end 18 is ring-like (annular), the surface does not have a shoulder for the bullet insert 12 (nozzle) to be retained. Instead, the frusto-conical inner surface of the discharge end 18 retains the bullet insert 12. Therefore, in properly construing the claims and then comparing the properly construed claims to Brennan, we find that Brennan does not describe the claimed nozzle-retaining annular shoulder surface.

Conclusion

In view of the foregoing reasons, we will not sustain the Examiner's rejection of claims 4, 6, and 21.

Rejection of claims 4-5, 8-10, 12-17 and 20-22 as anticipated by Miller

Appellants substantively argue claims 4, 8, 9, 14, 15, and 20-22. App. Br. 8-10. Appellants do not separately argue claims 5, 10, 12, 13, 16, and 17. App. Br. 9-10. For claims 5, 10, 12, and 16, Appellants recite the claim language and baldly conclude that Miller does not describe the language. *Id.* Such statements merely point out what the claims recite and are not considered separate arguments for patentability. *See* 37 C.F.R. 41.37(c)(1)(vii) (2008). As such, claim 5 stands or falls with claim 4; claims 10, 12 and 13 stand or fall with claim 9; and claims 16 and 17 stand or fall with claim 14.

Issue (Claim 4)

The Appellants contend that Miller does not describe a nozzle-retaining annular shoulder and a nozzle insert having a nonlinear axially extending inner surface. App. Br. 8. Thus, the issue between the Examiner and the Appellants is whether Miller describes these two structures.

Pertinent Facts (Claim 4)

We find that the following enumerated findings of fact are pertinent to analyzing whether the Appellants have shown that the Examiner erred in finding that Miller anticipates the invention within claim 4.

5. Annular shoulder is construed as above. *See* Facts 1 and 2.
6. An ordinary and customary meaning of “non-linear” is “not linear.” An ordinary and customary meaning of “linear” is “straight.” *See* MERRIAM WEBSTER’S COLLEGIATE DICTIONARY 723 (11TH ed. 2008). As such, an ordinary and customary meaning of “non-linear” is “not straight.”
7. Miller describes a motionless mixer tube connected to a dispensing needle assembly 40 that includes body 41, cylindrical tip 42, and flange 43. Miller, col. 4, ll. 31-49.
8. Miller’s Figure 4 shows in elevation that body 41 and tip 42 lie within parallel planes. Miller, fig. 4. This parallel relationship is a result of the tip cylindrical passage being smaller than the body cylindrical passage. As such, The walls of the inner surface of the dispensing needle assembly defined by both body 41 and tip 42 are non-linear in profile, as the cross-sectional area of the passage through the body 41 is greater than that of the tip 42 . Fig. 4.

Analysis (Claim 4)

For the reasons given above, we conclude that a person having ordinary skill in the art would interpret a nozzle-retaining annular shoulder surface as a surface having a ring-like area that is adjacent to an edge of a higher part. We next see whether Miller describes such a structure.

Miller's nozzle insert (assembly 40) has a flange. Fact 7. The flange 43 rests on a lateral surface that distinguishes two inner volumes of connector 37. One inner volume receives the outlet nozzle 45. The other inner volume receives Miller's nozzle insert. The lateral surface is located along an edge of the inner surface area that defines the volume to receive outlet nozzle 45 (the higher part). As such, the lateral surface is a shoulder for the flange of Miller's nozzle insert to engage. Because Miller's device is tubular in shape (*see* Fact 7), and Miller describes the nozzle tip as cylindrical, (*see id.*), the whole nozzle insert is cylindrical, and thus the shoulder for the flange to rest on is an annular shoulder. Further, because the flange 43 of Miller's nozzle insert is secured to the annular shoulder by the nozzle outlet 45, the structure is a nozzle-retaining annular shoulder surface that the flange of Miller's nozzle insert engages. For these reasons, Miller describes a nozzle-retaining annular shoulder surface as recited in claim 4.

As we found in Fact 8 above, the inner surface of Miller's nozzle insert is non-linear.

As such, Miller describes a nozzle-retaining annular shoulder surface and a nozzle insert having a nonlinear inner surface as recited in claim 4. In view of the foregoing, we will sustain the Examiner's rejection of claim 4. Claim 5 falls with claim 4.

Issue (Claims 8 and 20)

Appellants argue claims 8 and 20 as a group. We select claim 8 as representative of the group and claim 20 stands or falls with claim 8.

Appellants contend that Miller does not describe the claimed inner surface with a beveled-angular cut adjacent a first end, and a cylindrical surface portion extending longitudinally between the two ends of the insert. As such, the question becomes: have the Appellants demonstrated that the Examiner erred in rejecting claim 8 by arguing that claim 8 recites the insert having an inner surface with a beveled-angular cut adjacent a first end, and a cylindrical surface portion extending longitudinally at least partially between the first end and the second end of the insert?

Pertinent Facts (Claim 8)

9. In Miller's Figure 4, tip 42 appears to have a beveled flange surface that is seated on the inner surface of body 41.

Principles of Law (Claim 8)

A predecessor to our reviewing court stated that a drawing in a utility patent can be cited against the claims of a utility patent application even though the feature shown in the drawing was unintended or unexplained in the specification of the reference patent. *In re Aslanian*, 590 F.2d 911, 914 (CCPA 1979) (citing *In re Meng*, 492 F.2d 843, 847 (CCPA 1974) (the staggered cheese slices case); *In re Seid*, 161 F.2d 229, 231 (CCPA 1947); *In re Wagner*, 63 F.2d 987, 988 (CCPA 1933)).

Analysis (Claim 8)

In Miller's Figure 4, tip 42 appears to have a beveled flange surface and the flange appears set on the inner surface of body 41. Fact 9. As such, the surface that the outer surface of the flange sets on would likewise be beveled to accommodate the outer surface of the flange of the tip 42.

Accordingly, the surface in Miller that the beveled flange is seated on is a beveled-angular cut surface that is adjacent a first end of the insert. Note that either end of the insert (assembly 40) would satisfy the first end claim language. Additionally, either cylindrical inner surface of tip 42 or body 41 would satisfy the claimed subject matter of a cylindrical surface portion extending longitudinally at least partially between the first end and the second end of the insert.

In view of the foregoing, we will sustain the Examiner's rejection of claim 8. Claim 20 falls with claim 8.

Issue (Claim 9)

Appellants contend that Miller does not describe the radially outwardly extending annular flange engagable with the nozzle-retaining annular shoulder surface within the tubular housing. App. Br. 9. As we found above, Miller describes a nozzle-retaining annular shoulder surface and a nozzle insert having a radially outwardly extending annular flange. The issue is whether Miller's annular flange (flange 43) engages the annular shoulder surface.

Pertinent Facts (Claim 9)

10. As shown in Figure 4, Miller's annular flange (flange 43) engages what has been found to be the annular shoulder for Miller's nozzle insert (assembly 40). Additionally, the annular flange has a larger diameter than the body 41. Thus the flange extends radially outward. As such, Miller's annular flange extends radially outward and engages the annular shoulder surface.

Analysis (Claim 9)

Miller's annular flange extends radially outward and engages the annular shoulder surface. Fact 10. As we found above with respect to claim

4, Miller describes a nozzle-retaining annular shoulder surface and a nozzle insert having a radially outwardly extending annular flange. Accordingly, Miller describes a nozzle-retaining annular shoulder surface and a nozzle insert having a radially outwardly extending annular flange engageable with the nozzle-retaining annular shoulder surface that is within the tubular housing. As such, the Appellants have not shown that the Examiner erred in rejecting claim 9, and we will sustain the Examiner's rejection of claim 9. Claims 10, 12 and 13 fall with claim 9.

Claim 14

While the Appellants argue claim 14 separately, the contentions are no more than what the Appellants previously contended with respect to claims 4 and 9. App. Br. 9-10. For the same reasons above that we have given with respect to claims 4 and 9, we conclude that the Appellants have not shown that the Examiner erred in rejecting claim 14, and we will sustain the Examiner's rejection of claim 14. Claims 16 and 17 fall with claim 14.

Claims 15, 21, and 22

The Appellants contend that Miller fails to describe the claim limitation of the nozzle insert including an interchangeable tip portion insertable into the end of the tubular nozzle member and against the internal insert-retaining surface. App. Br. 10. As the Appellants have pointed out, Miller's assembly 40 is molded into the connector 37. *See* Miller, col. 4, ll. 44-49. While the assembly 40 and the connector 37 being made from different materials is not inconsistent with molding, as contended by the Examiner, it is, however, inconsistent with interchangeability. As such, the Appellants have shown that the Examiner erred in determining that Miller describes an interchangeable insert. We will not sustain the rejection of claims 15, 21, and 22 as anticipated by Miller.

Conclusion

In view of the foregoing, we will sustain the Examiner's rejection of claims 4, 5, 8, 9, 10, 12, 13, 14, 16, and 20, and will not sustain the Examiner's rejection of claims 15, 21, and 22.

*Rejection of claims 1-6, 8-18 and 20-22 as unpatentable over Brennan,
Miller and Keller*

In light of sustaining the rejection of claim 4 as being anticipated by Miller, we need not reach the issue of whether claim 4 is unpatentable under 35 U.S.C. § 103(a) as obvious in view of Brennan, Miller, and Keller.

Appellants do not separately argue claim 9 for this rejection. *See* App. Br., *passim*. As such, we conclude that the Appellants have argued claims 4 and 9 as a group. We select claim 4 as the representative claim. As such, claim 9 falls with claim 4.

Appellants separately argue claims 1-3, 5, 10, and 16. Appellants argue claims 15, 21, and 22 as a group. Thus, we select claim 21 as representative of the group, with claims 15 and 22 standing or falling with claim 21. Appellants argue claims 6, 11, and 18 as a group. We select claim 6 as representative of the group, with claims 11 and 18 standing or falling with claim 6. Appellants argue claims 8, 13, and 20 as a group. We select claim 8 as representative of the group with claims 13 and 20 standing or falling with claim 8. Appellants argue claims 12 and 14 as a group, and state that claims 14 and 17 stand or fall together. *See* App. Br. 5.. We select claim 14 as representative of the group, with claims 12 and 17 standing or falling with claim 14.

Issues

We have reviewed the Appellants' arguments (App. Br. 11-18) in response to the Examiner's positions. Accordingly, the issues are as follows.

Claim 1

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Keller, and Miller does not render obvious the invention within claim 1. This issue turns on whether: Keller's teaching of an externally stepped housing does not overcome the alleged deficiencies of Brennan and Miller; combining Miller with Brennan and Keller would destroy Miller's "inherent" multi-housing teaching; and Miller's structure does not teach or suggest trapping a flange of an insert assembly against a shoulder within a mixer element.

Claims 2 and 3

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 2. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitations of an interchangeable tip insertable into the tubular member, and the tip extending beyond an end of the nozzle tip portion.

Claims 15, 21, and 22

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 21. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitations of an interchangeable tip positionable within

the second end of the tubular member against the internal insert-retaining surface, and the insert having a smaller aperture at an outer end than the second end of the tubular member.

Claim 5

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 5. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitation of the insert having a cylindrical passage portion adjacent the second aperture.

Claims 6, 11, and 18

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 6. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitation of a static mixer insertable within the tubular housing for trapping the nozzle insert against the nozzle-retaining surface.

Claims 8, 13, and 20

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 8. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitation of the insert having an inner surface with a beveled-angular cut adjacent a first end, and a cylindrical surface portion extending longitudinally between the first end and the second end of the insert.

Claim 10

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 10. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitation of the nozzle insert having a first aperture at one end and a second aperture at another end, wherein the first aperture is larger than the second aperture and is disposed opposite from the nozzle-retaining surface of the tubular housing, and a cylindrical passage adjacent the second aperture.

Claims 12, 14, and 17

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 14. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitation of the nozzle insert extending outwardly beyond the second end of the tubular member.

Claim 16

The issue is whether Appellants have demonstrated reversible error on the Examiner's part by contending that the combination of Brennan, Miller, and Keller does not render obvious the invention within claim 16. This issue turns on whether the combination of Brennan, Miller, and Keller renders obvious the claim limitation of the nozzle insert having an entry point with an angular surface in communication with a cylindrical surface extending along at least a portion of the passage.

Pertinent Facts

11. The Examiner found that Brennan's insert does not include the claimed flange. Ans. 4.
12. The Examiner found that Miller teaches an analogous dispensing apparatus that includes an insert with a flange that has a cylindrical surface portion. Ans. 4.
13. The Examiner determined that, in consideration of Miller, it would have been obvious to a person of ordinary skill in the art to associate a flange with Brennan. Ans. 4.
14. The Examiner found that Brennan's tubular nozzle member 16 includes a tip portion having a shoulder, a conical nozzle bore, and a main body. Ans. 5.
15. The Examiner found that Brennan's nozzle does not include stepped reductions. Ans. 5.
16. The Examiner found that Keller teaches an analogous nozzle member that includes a tip with stepped reductions. Ans. 5.
17. The Examiner determined that, in consideration of Keller, it would have been obvious to a person having ordinary skill in the art to incorporate stepped reductions within Brennan's tip in order to facilitate length adjustment. Ans. 5.
18. The Examiner found that Miller teaches the flange 43 is trapped by the static mixer 48. Ans. 9.
19. The Examiner has not cogently explained which reference, among Brennan, Miller, or Keller, teaches or suggests an interchangeable tip that is insertable into the tubular member, and this tip extending beyond an end of the nozzle tip portion. Ans., *passim*.

20. The Examiner found that Brennan's insert is interchangeable. Ans. 6.
21. As shown in Miller's Figure 4, what the Examiner has found as satisfying the claimed nozzle insert (assembly 40) has an angular cut at one end, the end proximate the flange 43, that is funnel-shaped when revolved about the longitudinal axis. Further, proceeding down the page from this entry point, the insert's inner surface takes the shape of a cylinder. Miller, fig. 4.
22. As shown in Miller's Figure 4, what the Examiner has found as satisfying the claimed nozzle insert (assembly 40) has a cylindrical passage, the inner surface of tip 42, which extends from a second aperture, the second end being either the proximate end or distal end of the tip 42. Miller, fig. 4.
23. The Examiner found that Brennan's structure is capable of performing the trapping function recited in claim 6. Ans. 6. The Examiner reasoned that Brennan's insert 12 could not be removed from the tubular housing when the static mixer 26 is present. *Id.*
24. An ordinary and customary meaning of "bevel" is an inclined or slanted surface. *See* MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 117 (11th ed. 2008).

Principles of Law

Obviousness

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 405

(2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 550 U.S. at 406-407 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

In *KSR*, the Supreme Court emphasized “the need for caution in granting a patent based on the combination of elements found in the prior art,” *id.* at 415, and discussed circumstances in which a patent might be determined to be obvious. In particular, the Supreme Court emphasized that “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of *Hotchkiss*, 11 How. 248.” *KSR*, 550 U.S. at 415 (citing *Graham*, 383 U.S. at 12), and reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416. The Court explained:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417. The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.*

Examiner’s Burden

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *see also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *Id.* Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *Id.*

Appellants’ Burden

The Examiner has the initial burden of showing a *prima facie* case of obviousness, and the Appellant has the burden on appeal to the Board to demonstrate error in the Examiner’s position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) (“[t]o reject claims in an application under section 103, an examiner must show an unrebutted *prima facie* case of obviousness.... On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.”) (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

Teaching Away

Whether a reference teaches away from a claimed invention is a question of fact. *See In re Harris*, 409 F.3d 1339, 1341 (Fed. Cir. 2005). “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the

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path that was taken by the applicant.” *In re Haruna*, 249 F.3d 1327, 1335 (Fed. Cir. 2001) (quoting *Tec Air, Inc. v. Denso Mfg. Mich., Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999)). “When a piece of prior art ‘suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant’ the piece of prior art is said to ‘teach away’ from the claimed invention.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (quoting *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994

Utilization of Drawings

As previously stated, a predecessor to our reviewing court stated that a drawing in a utility patent can be cited against the claims of a utility patent application even though the feature shown in the drawing was unintended or unexplained in the specification of the reference patent. *In re Aslanian*, 590 F.2d 911, 914 (CCPA 1979) (citing *In re Meng*, 492 F.2d 843, 847 (CCPA 1974) (the staggered cheese slices case); *In re Seid*, 161 F.2d 229, 231 (CCPA 1947); *In re Wagner*, 63 F.2d 987, 988 (CCPA 1933)).

Analysis

Claim 1

The Examiner found that Brennan discloses the claimed nozzle member and the nozzle insert except for the flange for the nozzle insert and stepped reductions for the nozzle member. Facts 11, 14, and 15. The Examiner found that Miller teaches the claimed flange and Miller’s mixer traps the flange. Facts 12 and 18. The Examiner found that Keller teaches having stepped reductions on a tip. Fact 16. The Examiner determined that a person having ordinary skill in the art could apply the teachings of Miller and Keller to Brennan in order for Brennan to have a flange, and to facilitate adjustment in the length of the tip. Facts 13 and 17. As such, the Examiner

concluded that the invention within claim 1 is prima facie obvious based on the combination of Brennan, Miller, and Keller.

We find no deficiencies in the Examiner's finding that the combination of Brennan, Miller, and Keller render obvious the invention within claim 1. The Examiner found which reference discloses, teaches, or suggests each claimed element and applied that reference to that element. Then, the Examiner determined that a person having ordinary skill in the art could readily apply the teachings of Miller and Keller to Brennan for the reasons given. Ans. 4-5. In other words, the Examiner has articulated reasoning, with some rational underpinning, for making the combination. Therefore, the Examiner has set forth a prima facie case of obviousness with the combination of Brennan, Miller, and Keller. The Appellants' bald statements that the combination is deficient because the teachings in Keller do not overcome some unidentified deficiency in Brennan or Miller does not identify error in the Examiner's rejection. Next, we address the Appellants' contention that combining Miller with Brennan and Keller would destroy the "inherent" multi-housing teaching in Miller.

The Appellants' argument that Miller has an "inherent" multi-housing teaching which causes it to teach away from being combined with Brennan and Keller is unconvincing to demonstrate error in the Examiner's rejection. First, for the Appellants to state that Miller has an "inherent" teaching and not present evidence to demonstrate the presence of the "inherent" teaching causes the Appellants' argument to be speculative and hollow. Second, the Appellants have not presented any evidence that there is an "inherent" teaching in Miller that leads in a divergent direction or suggests a line of development from Miller's disclosure that is likely to be unproductive. *See In re Harris*, 409 F.3d at 1341; *In re Haruna* 249 F.3d at 1335; and

Medichem, 437 F.3d at 1165. Therefore, the Appellants have not presented any evidence of a person having ordinary skill in the art being led on a divergent path based on Miller's disclosure and thus have not shown that Miller teaches away. Moreover, Miller as a whole appears to teach an insert with a flange based on the Examiner's findings. *See* Fact 12. Next, we address the Appellants' argument that Miller fails to teach trapping the flange.

As we found above, Miller's flange 43 rests on a lateral surface that distinguishes two inner volumes of connector 37, and one inner volume of connector 37 receives the outlet nozzle 45. The Appellants do not contest that element 48 satisfies the claimed mixer element. Outlet nozzle 45 contains element 48 (*see* figure 4), and the end 44 of outlet nozzle 45 abuts flange 43. Because element 48 (static mixer) proceeds through to end 44 of outlet nozzle 45, element 48 is the part of end 44 that abuts flange 43 and thus traps flange 43 (which is part of the nozzle insert (assembly 40)), it is this distal portion of element 48 (static mixer) traps the nozzle insert against the nozzle-retaining surface.

Accordingly, the Appellants have not shown reversible error on the part of the Examiner by contending that Keller's teaching of an externally stepped housing does not overcome the alleged deficiencies of Brennan and Miller, that combining Miller with Brennan and Keller would destroy Miller's "inherent" multi-housing teaching, and that Miller's structure does not teach or suggest trapping a flange of an insert assembly against a shoulder within a mixer element. As such, we shall sustain the Examiner's rejection of claim 1.

Claim 2

The Examiner has not established nor cogently explained which reference renders obvious the claim limitation of an interchangeable tip that is insertable into the tubular member, and this tip extending beyond an end of the nozzle tip portion. Fact 19. By the Appellants having argued such an omission they have demonstrated error in the Examiner's rejection of claim 2. We are therefore constrained to not sustain the Examiner's rejection of claim 2 and of claim 3, which depends from claim 2.

Claims 15, 21, and 22

The Examiner found that Brennan teaches an interchangeable tip. Fact 20. We agree with that finding. From the drawings in Brennan, a person having ordinary skill in the art could readily deduce that Brennan's insert 12 is designed to be inserted and removed from the discharge end 18. By virtue of the insert being insertable and removable from the discharge end 18, it is interchangeable (capable of being interchanged). As such, the Appellants' argument to the contrary is unconvincing.

Likewise, Appellants' argument that Miller cannot be properly combined with Brennan and Keller because Miller teaches away from a requirement of a tubular nozzle is unconvincing. Again, the Appellants have not presented any evidence that there is a teaching in Miller that leads in a divergent direction or suggests a line of development from Miller's disclosure that is likely to be unproductive. Based on the Examiner's findings, Miller as a whole appears to teach an insert with a flange. *See* Fact 12. The Examiner utilized this teaching as part of presenting the prima facie case of obviousness. The Appellants have not presented any evidence, other than quoting a passage in Miller, to persuade us that what the Examiner relied on in Miller cannot be properly combined with Brennan and Keller to

render the claimed invention obvious. The Appellants have not provided any analysis other than a bald statement that Miller cannot be properly combined with Brennan and Keller because of the passage in Miller that the Appellants have referenced. The Appellants' argument is fallaciously circular. As such, we are unconvinced that Miller cannot be properly combined with Brennan and Keller in the manner the Examiner has formulated in order to demonstrate that the combination of Brennan, Miller, and Keller renders the invention within claim 15 obvious.

Additionally, responding to the Appellants' argument that there is no motivation to combine the references in the manner asserted by the Examiner, the Supreme Court has stated that a rigid insistence on a teaching, suggestion, or motivation being a present part of the obviousness analysis is incompatible with its precedent concerning obviousness. *KSR*, 550 U.S. at 419. Further, the Examiner has articulated reasoning, with some rational underpinning, for making the combination.

In view of the foregoing, we shall sustain the Examiner's rejection of claims 15, 21, and 22 as unpatentable over Brennan, Miller, and Keller.

Claim 5

The Examiner found that the combination of Brennan, Miller, and Keller shows the claim limitation of the nozzle insert having a cylindrical passage portion adjacent a second aperture. We agree with the Examiner in this regard because Miller's drawings show such a structure. Fact 22. As stated above, a reference's drawings can be used against the claims even though the feature in the drawing was unintended or is unexplained within the specification. *In re Aslanian*, 590 F.2d at 914. As we stated above, in responding to the Appellants' argument that there is no motivation to combine the references in the manner asserted by the Examiner, the

Supreme Court has stated that a rigid insistence on a teaching, suggestion, or motivation being a present part of the obviousness analysis is incompatible with its precedent concerning obviousness. *KSR*, 550 U.S. at 419. Further, the Examiner has articulated reasoning, with some rational underpinning, for making the combination. In view of the foregoing, we shall sustain the Examiner's rejection of claim 5.

Claims 6, 11, and 18

We agree with the Examiner that Brennan's insert 12 is trapped by the static mixer 26 when the insert 12 is located in the discharge end 18, and thus the static mixer 26 is readily capable of performing the function of trapping the nozzle insert (insert 12) against the nozzle-retaining surface, the inner surface of discharge end 18. Moreover, prior to assembly, the static mixer had to be inserted into the tubular housing 20. As we determined above, Miller's flange 43 rests on a lateral surface that distinguishes two inner volumes of connector 37, and one inner volume of connector 37 receives the outlet nozzle 45. The Appellants do not contest that element 48 satisfies the claimed mixer element. Outlet nozzle 45 contains element 48, (*see* Miller, fig. 4), and the end 44 of outlet 45 abuts flange 43. Because element 48 (static mixer) proceeds through to end 44 of outlet 45, element 48 is the part of end 44 that abuts flange 43 and thus traps flange 43 (which is part of the nozzle insert (assembly 40)), it is this distal portion of element 48 (static mixer) traps the nozzle insert against the nozzle-retaining surface. As such, we shall sustain the Examiner's rejection of claims 6, 11, and 18.

Claims 8, 13, and 20

We have found that Miller's insert has an angular cut funnel-shaped inner surface adjacent one end. *See* Fact 21. This structure in Miller can likewise be considered a beveled-angular cut given the ordinary and

customary meaning of the term bevel. Fact 24. Viewing Figure 4, this surface is clearly inclined or slanted relative to a horizontal line. As such, we see no deficiency in the combination of Brennan, Miller, and Keller with respect to rendering obvious the limitation of the nozzle insert having an inner surface with a beveled-angular cut adjacent the first end. Additionally, Miller's nozzle insert (assembly 40) has an inner surface that is cylindrical, extending from the beveled-angular cut surface at the first end to the second end. Further, as we stated above, in responding to the Appellants' argument that there is no motivation to combine the references in the manner asserted by the Examiner, the Supreme Court has stated that a rigid insistence on a teaching, suggestion, or motivation being a present part of the obviousness analysis is incompatible with its precedent concerning obviousness. *KSR*, 550 U.S. at 419. Further, the Examiner has articulated reasoning, with some rational underpinning, for making the combination.

Accordingly, we shall sustain the Examiner's rejection of claims 8, 13, and 20.

Claim 10

As we determined previously, assembly 40 of Miller satisfies the claim recitation of a nozzle insert, and Miller's stepped interior structure satisfies the nonlinear aspect of the passage. As shown in the drawings (fig. 4), this passage has two apertures at the ends. The cylindrical passage that is adjacent to the respective aperture extends in the longitudinal direction of the insert. As such, either aperture in the nozzle insert (assembly 40) can satisfy the recitation of a cylindrical passage portion adjacent a second aperture.

In view of the foregoing, we will sustain the Examiner's rejection of claim 10.

Claims 12, 14, and 17

As shown in Figure 4 of Miller, the insert (assembly 40, particularly tip 42) extends below the tubular housing (connector 37). Because Miller's tip extends below the housing it also extends beyond the housing. As such, Miller describes the insert (the tip portion 42) extending beyond one end of the tubular housing.

In view of the foregoing, we will sustain the Examiner's rejection of claims 12, 14, and 17.

Claim 16

As shown in Figure 4 of Miller, the insert top portion (body 41) has an entry point that is part of flange 43 where the body 41 terminates. Miller describes the flange as an outturned top end flange. (*See* Miller, col. 4, l. 49). It can be reasonably concluded, from both the drawing and Miller's written description, that the surface between the longitudinally, cylindrical portion of the body 41 and the axially extending portion of the flange 43, is rolled outwardly during the manufacturing of the portion of the nozzle insert. As such, that portion is an angular surface, and thus satisfies the limitation of the insert having an entry point with an angular surface in communication with the cylindrical surface.

Accordingly, we will sustain the Examiner's rejection of claim 16.

Conclusion

In view of the foregoing, we sustain the Examiner's rejection of claims 1, 5, 6, 8, 10-18, and 20-22. We do not sustain the Examiner's rejection of claims 2 and 3.

DECISION

The Examiner's decision to reject claims 1, 4-6, 8-18, and 20-22 is affirmed.

The Examiner's decision to reject claims 2 and 3 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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